



SPAIN

Country Report on ICT in Education

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TABLE OF CONTENTS

1. THE EDUCATION CONTEXT	1
1.1 Key educational challenges and priorities	1
1.2 Education reforms	1
2. ICT in education POLICY	2
2.1. National/regional ICT policies	2
2.2. Responsibilities	3
2.3. Specific ICT initiatives	4
2.4. ICT priorities	6
3. The curriculum and ICT	7
3.1. ICT based assessment	7
3.2. School improvement with ICT	7
3.3. The curriculum framework	7
3.4. ICT in the curriculum	8
3.5. Students' ICT competence	8
3.6. Assessment of ICT competence	9
4. DIGITAL LEARNING RESOURCES AND SERVICES	9
4.1. E- Content development	9
4.2. Content sharing	9
4.3. Accessibility for learner with disabilities and social inclusion	10
4.4. Web 2.0	10
4.5. Learning Platforms	10
5. TEACHER EDUCATION FOR ICT	10
5.1. Assessment schemes	10
5.2. School leader support	11
5.3. ICT for inclusion	11
5.4. ICT in initial teacher education	11
5.5. ICT in in-service teacher education	12
5.6. Training the teacher trainers	12

1. THE EDUCATION CONTEXT

1.1 KEY EDUCATIONAL CHALLENGES AND PRIORITIES

The main educational challenges for the whole country are established in the present Educational Law “Ley Orgánica de Mejora de la Calidad Educativa”, ([LOMCE](#)):

1. Reducing early drop-out rates in compulsory education (Primary and Secondary Education).
2. Improving the students’ results according to international standards, both in the comparative rates of excellent students and the number of graduates in Secondary Education.
3. Improving students’ employability and entrepreneurial thinking and stimulate students.

In order to achieve these general goals, the measures established in the same law include the following:

- 1) To increase the autonomy of schools and to reinforce the administration capacity of the management bodies in the schools, regarding decisions on the school educational offer and methodologies and more educational and leadership management.
- 2) To develop external evaluations at the end of the educational stage to improve student learning, policy management and school administration.
- 3) To rationalise the educational offer, emphasizing the learning of core subjects that contribute to the acquisition of basic skills.
- 4) To provide a flexible educational offer through programs in order to improve learning in compulsory secondary education and initial voca-

tional training, including the earlier offer of academic and vocational training studies, making the last year of compulsory secondary education a preparatory course with two clearly distinct possibilities.

- 5) ICT use to cater for the different educational needs and pace of each student.
- 6) To promote multilingualism.
- 7) To revitalize Vocational Training and the option of apprenticeship. To offer a new Basic Vocational Training connected to the Mid and Upper Grade Vocational Training and to regulate the dual vocational training.

1.2 EDUCATION REFORMS

Based on the efforts made in previous educational systems, Spain has achieved the goal of universal education:

- the schooling of 97% of children under 3 years,
- the constitutional right to education,
- guaranteed basic and free compulsory education,
- free post-compulsory secondary education (both academic and Mid-grade vocational training).

With these goals attained, two new situations need attention:

- One in four students do not continue their education beyond compulsory education or do not even get the Compulsory Secondary Education Certificate.
- In terms of academic results, 15-year old Spanish students performed in PISA 2012 below the OECD average.

The latest reform of the Educational law for the entire country is the **Organic Law to Improve the Quality of Education**: “Ley Orgánica de Mejora de la Calidad Educativa”, ([LOMCE](#)). This reform

has started to be implemented in schools during the school year 2014-2015 and will be fully implemented in the school year 2016-2017. It modifies the previous “Ley Orgánica de Educación” ([LOE](#)), dating from 2006. The reform proposed by the LOMCE is based on evidence and gathers the best compared practices.

The reform of the educational law intends to:

- increase the number of students that successfully complete Compulsory Secondary Education,
- reduce early drop-out rates in compulsory education to the European average rates,
- reduce the overall youth unemployment rate,
- encourage the access to vocational studies and improve the rate of graduates in this type of studies,
- improve the students’ results in international tests,
- establish assessment procedures by means of external standard evaluations,
- make schools more autonomous and
- improve knowledge and skills in foreign languages.

For more information on the Law to Improve the Quality of Education: “[Ley Orgánica de Mejora de la Calidad Educativa](#)”.

For the timeframe for the implementation of the law, see Annex I.

2. ICT IN EDUCATION POLICY

2.1. NATIONAL/REGIONAL ICT POLICIES

The ICT programmes at national level are coordinated by the **Instituto Nacional de Tecnologías Educativas y de Formación del Profesorado** ([INTEF](#)), which is the ICT for education unit of the Spanish Ministry of Education (MoE). Since 2012,

the MoE is working on the development of a national ICT plan for schools: the “**Plan de Cultura Digital en la Escuela**”. This plan comprises five main lines of action:

1) Connectivity: School access to Internet, taking advantage of already existing nets. In this respect, the Spanish MoE has just launched a new project, [School Connectivity](#) (along with other Ministries), to provide Internet access using ultra-fast broadband networks (100 Megabits per second) to primary and secondary schools, paying particular attention to those schools with poor connectivity due to their location.

2) Standards and interoperability between the management systems of the different educational administrations and the rest of systems and tools of the educational ecosystem, as it is the case of the Virtual Learning Environments. Bearing this in mind, the INTEF has created the “*Interoperability Office*” that coordinates actions related to interoperability and standardization. The technological platform used for these purposes is called *Node for Educational Interoperability*, which allows supplying, in a modular fashion, web services used by the different Educational Administrations and authorized entities.

3) A collaborative site of OER, as a development of the previous “Agrega 2” platform. The [Procomún](#) platform provides access to the national repository of digital Open Educational Resources (OER) of the Spanish MoE and Autonomous Communities, which hosts digital teaching materials in a standardized way through metadata (LOM-ES), consistent with the curriculum of non-university educational stages and ready to be easily used in the classroom as well as modified and adapted to different contexts and needs. Download formats of learning objects favor the integration in LMS platforms. Moreover, teachers have

the authoring tool [eXelearning](#) available for the creation of contents. It is an easy to use open-code tool that allows to adapt educational materials to the needs of teachers and students. See *Section 4.2 Content Sharing*.

- 4) **A General catalogue of commercial educational resources.** In 2013, the Spanish MoE launched the [Punto Neutro](#) platform. Its main objective is to show, in the form of a catalogue and in a single space, the national offer of digital educational resources that publishers make available to the educational community, connecting in a simple way the Virtual Learning Environments used by students and teachers with the resources prescribed by schools for each of the educational levels.
- 5) **Teachers' digital competence.** In this field, INTEF, together with the other regional educational administrations in Spain, is working on the "[Common Framework for Teaching Digital Competence](#)", a standardized proposal which specifies teacher's digital competence through descriptors of 21 sub-competencies organized in three levels and five competency areas (information, communication, content creation, security and troubleshooting). The initial draft is a translation and adaptation to the teaching profession of the model proposed by IPTS (European Commission) for any European citizen in connection with the Digital Agenda 2020.

Moreover, INTEF provides Spanish teachers with face-to-face and online [training opportunities](#) to improve teaching and ICT skills. Face-to-face opportunities include summer courses, congresses, conferences, professional stays and other types of activities provided by universities or other institutions. As far as online teacher training is concerned, INTEF's offer includes [online courses](#) – offered through a Moodle platform – and [MOOCs](#). These courses are part of the framework of action to promote Teacher Professional Development and Digital Culture at School and are intended for

non-university teachers. 1,000 places have been offered for online courses and MOOC's have no restrictions to this respect.

All of these national actions (connectivity, interoperability, OER and commercial resources, Teacher Digital Competence and Training) are completed and made specific with regional plans or activities which vary depending on the Autonomous Regions.

2.2. RESPONSIBILITIES

The Spanish administration is a highly decentralised system where Autonomous Communities administer resources and legislate under the general umbrella of national law. In the case of education, all Autonomous Communities are fully responsible for the schools in their territory, which includes the promotion of ICT in schools. This provides a varied setting with as many plans as Autonomous Communities, addressing topics from connectivity in schools, software provision, school management software, open software adoption (with different customised Linux distributions) to teacher training plans, amongst other issues.

The Spanish Ministry of Education, Culture and Sport coordinates several initiatives at national level, in collaboration with the Autonomous Communities, through the **National Workgroup for Learning Technologies**. These initiatives include the ones mentioned in the *Section 2.1 National/regional ICT policies* and are embedded in the national ICT plan. This plan started in 2012 and is still being developed: "[Plan de Cultura Digital en la Escuela](#)". This requires collaboration with the Autonomous Communities for the design and implementation of the different actions in order to bring them in line with the ongoing related regional plans, since the regional authorities are responsible for the allocation and administration of resources in all cases.

Each action line of the **Plan de Cultura Digital en la Escuela** is articulated through a Committee of



Experts formed by the MoE, several representatives from the Autonomous Communities and external experts.

2.3. SPECIFIC ICT INITIATIVES

1:1 mobile learning initiatives (including the use of netbooks, laptops, tablets, mobile phones or other mobile devices)

Samsung Smart School Project

This project is the result of a collaboration between the Educational Administration and Samsung's corporate social responsibility unit. It is addressed to State Primary Schools located in areas with special needs. The objective is to promote the students' learning through digital resources using the Smart School technology provided by Samsung which includes one tablet per student and teacher.

The project is being developed during the academic year 2014-2015 and will possibly be extended during 2015-2016. It involves 13 Autonomous Communities plus the two Spanish Autonomous Cities (Ceuta and Melilla). The objective is that teachers create educational projects to be developed in class with their students by using the tablets and the rest of the technology provided.

To ensure the success of the project and to obtain relevant results, the following actions have been included:

- 1) teacher training (blended learning model),
- 2) working together in the community "Project Smart Schools" created on the MoE platform Procomún,
- 3) assessment and evaluation during the project,
- 4) drafting of a document on lessons learned, that will be published in September 2015.

Moreover, INTEF has also developed online teacher training connected to mobile learning and a community on **Procomún** is already available related to mobile learning and augmented reality.

For further information:

- *Community for collaboration:*
<https://procomun.educalab.es/es/comunidad-es/proyecto-smart-schools>
- *Articles:*
<http://blog.educalab.es/intef/2015/04/01/inter-cambio-de-experiencias-docentes-en-el-i-encuentro-docentes-samsung-smart-schools/>
- *Final report: to be published in September 2015*
- *Community related to mobile learning and augmented reality:*
<https://procomun.educalab.es/es/comunidad-es/mobile-learning-y-realidad-aumentada-en-educacion>

MOOCs for teacher professional development or initial teacher training or MOOCs for students, including certification

Massive Open Online Courses offered by INTEF are a new form of training proposals for teacher professional development. In 2014, INTEF launched a pilot plan of MOOC's for teacher training within the lines of action of the project "New forms of training". Currently, four MOOCs are offered:

- Personal Learning Environments
- Project Based Learning
- Teaching and Learning the Digital Competence
- the eTwinning MOOC

The following ones will be offered after summer 2015:

- Mathematic
- Scientific and Technological competence (STEM)
- Digital Storytelling
- Robotics and coding
- Sense of initiative and Entrepreneurial competence
- Expanded education

- e-Sfety and children ([Red.es](#))

For more information: MOOC platform:
<http://mooc.educalab.es/courses>

ICT for inclusion (early school leavers, migrants, etc.) and special needs (physical, mental, emotional)

Since one of the areas of INTEF is teachers' competence development through teacher training, two specific online courses addressing the topic inclusion and ICT are offered:

- « Educación inclusiva: iguales en la diversidad » (Inclusive education : equal in diversity)
- “Respuesta educativa para el alumnado con TDAH (Déficit de atención e hiperactividad)” (*Educational response to the students with ADHD - attention-deficit hyperactivity disorder*).

In addition, **face-to-face courses, seminars, conferences** related to inclusion are offered:

- “Convivencia, participación y prevención de la discriminación y la violencia en las aulas” (*Coexistence, participation and prevention of discrimination and violence in the classrooms*)
- “Il Jornada Educativa para la población gitana” (*Il Educational Seminar for the Gypsy population*).

For more information:

- Course “Educación inclusiva: iguales en la diversidad”: <http://bit.ly/1GuCi58>
- Course “Respuesta educativa para el alumnado con TDAH (Déficit de atención e hiperactividad)”: <http://bit.ly/1MroVTp>
- Course “Convivencia, participación y prevención de la discriminación y la violencia en las aulas”: <http://bit.ly/1L2Q69Q>
- Seminar “Il Jornada Educativa para la población gitana”: <http://bit.ly/1HxOAKZ>

ICT for learning initiatives targeted to boost employability and entrepreneurship

The Spanish MoE is developing, through the “*Centro Nacional e Innovación e Investigación Educativa*”, the “**Proyecto de Emprendimiento**”. It aims at identifying and organizing activities to help develop the skills needed for entrepreneurship, and develop actions that help to train those competences. The actions are:

- Reflection and debate on the development of entrepreneurial competence in the education system,
- Entrepreneurship education in the educational system,
- Dissemination, exchange and promotion of good practices and experiences,
- Developing a common framework,
- Training and support for teachers.

As part of the development of a common framework, numerous **educational materials** have been developed and an **interactive portal for online work** has been launched.

Moreover, INTEF is offering the MOOC *Sense of initiative and Entrepreneurial competence*.

For more information:

- *Interactive portal for online work:*
<http://bit.ly/1dAuluv>
- *Teachers Guide (basic and medium levels):*
<http://bit.ly/1QRcjGn>, <http://bit.ly/1FcHpSb>

Cloud computing and connectivity (e.g. wireless Internet, optical fibre connections)

The Spanish MoE has just launched a new project, *Conectividad en Centros Escolares* (Project School Connectivity), to provide Internet access using ultra-fast broadband networks (100 Mega-bits per second) to primary and secondary schools, paying particular attention to those



schools with poor connectivity due to their location. This project will be of benefit to more than 6,5 million students and 16,500 schools.

For more information: Project “Conectividad en centros escolares”: <http://bit.ly/1S9UJAa>

Other ICT initiatives of interest to other policy-makers

Development of two platforms: one to promote the use of OER (*Procomún*) and another with commercial digital resources (*Punto Neutro*).

See also sections 2.1.National/ regional ICT policies and Section 4.2 Content Sharing.

Development of a proposal of a common frame of reference for Teacher Digital Competence. The proposal is divided into five areas.

See also sections 2.1.National/ regional ICT policies.

2.4. ICT PRIORITIES

A: Digital Competence Development

Area	High	Mid	Low
Developing measures to support digital competence for future teachers		X	
Developing measures to support digital competence for in service teachers	X		
Developing measures to support school leaders in the integration of ICT		X	
ICT for learning initiatives targeted to boost youth employability and entrepreneurship	X		
ICT for accessibility and inclusion: early school leavers, migrants, etc... and special educational needs		X	

Reference to policy action measure related to Digital Competence Development:

The Ministry of Education has created a draft framework for Teacher Digital Competence based on the DIGCOMP model developed by IPTS. Draft of the Spanish framework of teacher Digital Competence: <http://bit.ly/1op4WME>

B: ICT in Curricula and Assessment

Area	High	Mid	Low
Developing computer/programming skills		X	
Developing key competences	X		
Developing 21st century skills (critical thinking, problem solving, communication, collaboration, and creativity and innovation)	X		
Assessing with ICT/ICT based exams		X	
Learning Analytics		X	

C: System-wide innovation

Area	High	Mid	Low
Piloting and validating innovative uses of ICT		X	
Mainstreaming ICT in schools	X		

D: Mobile Devices

Area	High	Mid	Low
Use of tablets		X	
Use of mobile phones			X
Bring Your Own Device			X
Cloud computing		X	

Reference to policy action measures related to Mobile Devices:

Samsung Smart School Project: See section 2.3 Specific ICT initiatives

E: Use of digital resources

Area	High	Mid	Low
Developing educational content repositories/metadata	X		
Supporting the development of open educational content and resources	X		
Supporting the development of educational content/resources provided by publishers	X		
Promoting the use and sharing of educational resources with teachers	X		

Reference to policy action measures related to the use of digital resources:

The tool promoted by the MoE and several Autonomous Communities for the creation of new resources is **eX-eLearning** (<http://exelearning.net>). It is an Open Source authoring application to assist teachers and academics in the creation and publishing of educational content. For content sharing, the MoE provides the platform "Procomún" (<https://procomun.educalab.es>): a community with more than 10.000 teachers that share digital materials and resources. The Ministry courses connected to the production of OER.

F: Learning environments

Area	High	Mid	Low
Linking formal and informal learning using ICT		X	
Providing equitable access to ICT (infrastructure, devices and content)	X		
Providing a safe learning environment to students and teachers	X		
Commissioning ICT related research		X	

3. THE CURRICULUM AND ICT

3.1. ICT BASED ASSESSMENT

As for the students' assessment, the MoE is developing a pilot to explore the possibilities to implement digital versions of the end-of-stage tests (online and offline) which are compulsory for all students in Spain. Seven Autonomous Communities are involved in this pilot. Apart from these official tests, the student assessment by using ICT depends on each school.

3.2. SCHOOL IMPROVEMENT WITH ICT

The evaluation, inspection and monitoring of school improvement is the task of the specific Educational Administration on which the school is dependent. At the moment, schools do not have any particular ICT tool available for school self-evaluation and this task is performed by district education officers.

3.3. THE CURRICULUM FRAMEWORK

The Spanish MoE establishes a minimum curriculum for the compulsory school levels which is shared by all Autonomous Communities. It takes up 65% of the total curriculum, except in those regions which have another official language besides Spanish, where it takes up only 55%. The regional educational authorities in each autonomous community develop the rest of the curriculum so that it expresses their preferences and local characteristics. The curriculum is arranged in subjects and its main elements are the objectives, competences, contents, methodological approach, learning standards and evaluation criteria, with references to the European Key Competences Framework.



3.4. ICT IN THE CURRICULUM

In primary and secondary education, ICT is considered as a key competence and is covered in all subject areas of the curriculum. One of the main goals of primary education¹ is to “begin to use information and communication technology and develop critical awareness of the messages sent and received.”

As a separate subject, ICT is first introduced at Secondary School level² (7th to 10th grade): students can study “technology” (which is partly devoted to computer science) as an optional subject from the 7th to the 10th grade. In addition, ICT is offered as an optional subject in the 10th grade.

In secondary education, it is established that students must “develop basic skills in the use of information sources to acquire new knowledge and basic training in the field of technology, especially in information and communication technologies.” Furthermore, goals related to the use of ICT are detailed within the curriculum of every school subject. In mathematics, for instance, one of the defined goals is that of “using information technologies for conceptual analysis and the recognition of the properties of functions and graphs”. These goals try to make the student competent in the use of ICT as a means of obtaining and processing information as well as a way of expressing themselves.

3.5. STUDENTS’ ICT COMPETENCE

Targets can be divided into two categories: those that are subject related, like the ones expressed above, and the more generic ones, which coincide with the digital competence of the European key

competences framework. *See also section 3.4 ICT in the curriculum.*

According to the present Spanish educational law, ICT competence involves the creative, critical and secure use of information and communications technologies to achieve objectives related to work, employability, learning, use of free time, inclusion and participation in the society. It requires basic related specific language skills: textual, numerical, iconic, visual, graphic and sound as well as their patterns of decoding and transfer. This involves knowledge of the main tools and also access to sources and information processing, as well as knowledge of the rights and freedoms of people in the digital world.

The current law also states the development of various skills related to the access to information, processing and use for communication, content creation, security and problem solving, both in formal and non-formal settings. The acquisition of these competences also requires attitudes and values that allow users to adapt to the new requirements established by technologies, appropriation and adaptation to one’s own ends and the ability to interact socially around them. It is developing an active, critical and realistic attitude towards technologies and technological means, assessing their strengths and weaknesses and respecting ethical principles in their use. Moreover, digital competence involves participation, collaborative work, motivation and curiosity for learning and improvement in the use of technologies. For an adequate development of digital competence, it is necessary to address the following areas:

- Information,
- Communication,
- Content creation,

¹ Official detailed document (in Spanish) for minimum curriculum for the primary level <http://tinyurl.com/39m6abb>

² Official detailed document (in Spanish) for minimum curriculum for the secondary level <http://tinyurl.com/39fnv9e>

- E-Safety,
- Problem solving.
- See *Infography about digital competence*:
<http://bit.ly/1KptH6y>

3.6. ASSESSMENT OF ICT COMPETENCE

The assessment of the students' ICT competence is integrated in all subjects in a transversal way. Moreover, it is assessed in a more direct way in the separate optional subject ICT, offered at secondary education level.

4. DIGITAL LEARNING RESOURCES AND SERVICES

4.1. E-CONTENT DEVELOPMENT

There are a number of authoring tools that have managed to build up a community of users supported by the educational authorities, the most relevant ones being **JClic** (mainly Primary School), **Malted** (English as a second language) **Newton** (Physics) and **Descartes** (Mathematics).

The latest tool whose use is being promoted by the MoE and several Autonomous Communities for the creation of new resources is **eXeLearning**. The original project of this tool was developed by New Zealand and it has lately been developed by the Spanish MoE in collaboration with several Autonomous Communities and other organizations (<http://exelearning.net/>). **eXeLearning** is an Open Source authoring application to assist teachers and academics in the creation and publishing of educational content. Users of the tool are not required to be experts in HTML or XML. Resources authored in **eXe** include multimedia materials, self-evaluation interactive activities, etc. that can be exported in IMS Content Package, SCORM 1.2, or IMS Common Cartridge formats or as simple self-contained web pages.

INTEF also offers the following courses connected to the production of OER:

- OER for Infant and Primary Education:
<http://bit.ly/1JrRYA>
- OER for Social Sciences: <http://bit.ly/1JnFv6u>
- OER for Mathematics: <http://bit.ly/1Kqzk4D>
- OER for CLIL approaches:
<http://bit.ly/1eXynnf>
- OER for Science: <http://bit.ly/1eXyvmo>
- OER for Languages: <http://bit.ly/Kbjl88>

4.2. CONTENT SHARING

The development of the platform **Procomún** is part of a national initiative (<https://procomun.educalab.es/>). All the Autonomous Communities support this initiative with the aim to promote the use of the OER that are available on this platform. This national repository of contents federates content from repositories from each Autonomous Community, that also show an interest in integrating, optimizing and disseminating among teachers the variety of materials offered in different regional platforms (Educamadrid, Educantabria, Aularagón, LliureX, Educarm, Averroes, Educa, Medusa, Eskola 2.0, etc.)

Moreover, some Autonomous Communities also have their own repositories with educational contents available for teachers.

Along with this national initiative, the project *Plan de Cultura Digital en la Escuela* which is developed by the National Institute for Educational Technologies and Teacher Training of the MoE includes a work line related to interoperability and standards. One of the aims of this line is to establish standards related to exchange protocols and formats of the digital educational contents, so that it is easier to share them within the country and with other countries.

See *Section 2.1 National/ regional ICT policies*.



4.3. ACCESSIBILITY FOR LEARNER WITH DISABILITIES AND SOCIAL INCLUSION

Teachers can access learning resources for students with special needs in repositories administered by the MoE (Procomún) and in the repositories of the Autonomous Communities. See also section 4.2 Content Sharing.

The MoE includes among its priorities the need to use ICT in order to adapt to the different abilities and conditions of each student, which means using them to adapt learning for students with disabilities or special needs.

4.4. WEB 2.0

The MoE supports and promotes web 2.0 tools in schools for teaching and learning through the following actions:

- 1) The national educational web **EducaLab** (<http://educalab.es>), which is a meeting space that aims to support teachers and the whole Spanish educational system. It is based on five main principles: Know, Create, Share, Connect and Collaborate. This space comprises all the national initiatives regarding teaching, learning and web 2.0. See *Infography "what is educalab"*: <http://bit.ly/1JntFsU>
- 2) **Procomún** (<https://procomun.educalab.es/>) is a community of more than 10.000 teachers that share knowledge, experience, digital materials and resources, etc. through different communities created, organized and managed by the very users of this platform. See Section 4.2 Content sharing.
- 3) **CeDeC** (<http://cedec.educalab.es>) is a unit that belongs to the MoE and aims at designing, promoting and developing digital educational materials through free software. It provides the entire community with digital educational materials and resources (OER)

that enable to deepen the implementation of ICT in Education.

It is intended that, in the future, the educational social network supported by the MoE will be integrated in the *Agrega* platform.

4.5. LEARNING PLATFORMS

Moodle is widely used for online teacher training and a growing number of schools have also adopted it for their own purposes.

Most Autonomous Communities provide their teachers and schools with a virtual learning environment to upload and share resources with their students. Virtual learning environments are usually hosted centrally, not in the schools, and are often custom-made by software companies. They have been the most successful solutions for VLE since they are centrally administered and, this way, schools do not have to devote their own resources (people and devices) for their maintenance. Regional support is also given to the schools in order to have their own portal and intranet. In these cases, central servers host the school websites which the school manages through a pre-installed content management system.

One of the objectives of the MoE through its *Plan de Cultura Digital en la Escuela* is to establish standards for the platforms used by the different Autonomous Communities in the educational field so that educational contents can be used in any VLE used by teachers in all the Communities.

See Section 2.1 National/ regional ICT policies.

5. TEACHER EDUCATION FOR ICT

5.1. ASSESSMENT SCHEMES

There is no nationwide specific accreditation scheme for ICT teacher competence such as ECDL. Teachers are certified on a course-by-

course basis according to the number of hours devoted to them. Courses need to be certified by the regional authorities to be taken into account for the teachers' professional records and they are mainly taken online and outside of school time. A teacher is required to take a minimum number of hours (100 to 250 hours depending on the Autonomous Community) every six years in order to obtain a raise in his salary, but the courses do not have to focus on ICT, but can be related to any aspect of education. Nevertheless, the offer of ICT courses (especially online), tends to outnumber the offer of non-ICT related courses.

Furthermore, one of the objectives the *Plan de Cultura Digital en la Escuela* of the MoE is to design and agree, with the Autonomous Communities, on a common model of development of ICT teacher competences for all dimensions and levels which would be valid both for initial and ongoing ICT training. As a result, a **draft framework for Teacher Digital Competence** has been designed, based on the DIGCOMP model developed by IPTS.

See *Draft of the Spanish framework of teacher Digital Competence*: <http://bit.ly/1op4WME>

5.2. SCHOOL LEADER SUPPORT

School leaders are supported by the corresponding educational administration on which their school depends on. The support for ICT strategy may vary, from the support of district education officers to special regional programmes that favour the introduction of ICT in schools.

5.3. ICT FOR INCLUSION

The Ministry of Education offers an online course that address ICT and inclusion:

- Education for inclusion: equal in diversity: <http://bit.ly/1GuCi58>
- Educational response to students with Attention Deficit Hyperactivity Disorder

(ADHD): <http://bit.ly/1MroVTp>

Moreover, INTEF also offers digital self-study materials in:

- Inclusive education. Visual impairment: <http://bit.ly/1du9ii8>
- Inclusive education. People with autism spectrum disorders: <http://bit.ly/1GWoK1n>
- ICT resources for SEN students: <http://bit.ly/1HrBzSB>

The course materials are open to all teachers/people, also without enrolling to the courses.

Alongside the training, the MoE also offers digital materials to help teachers deal with the attention to diversity: <http://bit.ly/1g5mtlj> and materials on the subject of reading and writing for special education needs students; contents can be freely accessed: <http://proyectos.cnice.mec.es/ales2/>

Among the different actions undertaken by the Autonomous Communities, the project developed by the Autonomous Community of Aragón focused on augmentative and alternative communication has a special relevance. It has grown to become an international reference for its useful materials and tools. <http://www.catedu.es/arasaac/>

See also section 2.3. *Specific ICT initiatives*.

5.4. ICT IN INITIAL TEACHER EDUCATION

ICT is compulsory in initial teacher education. Primary teachers must take at least a one-semester subject covering ICT in Education. Secondary school teachers must take a specific Master in Secondary Education, part of which covers the integration of ICT in the teaching of their subject of expertise.

Initial teacher training tends to be a mixture of a theoretical and a hands-on approach that tries to



enable future teachers to use ICT in their classrooms as well as to reflect upon and investigate them.

5.5. ICT IN IN-SERVICE TEACHER EDUCATION

ICT in in-service teacher education is not compulsory. Nevertheless, there is a reasonable offer of ICT teacher training courses both at national and regional level which is positively welcomed by in-service teachers. Teachers sign up for those courses offered by educational authorities (online or face-to-face) according to their preferences and/or needs. *See also 5.1 Assessment Schemes.*

5.6. TRAINING THE TEACHER TRAINERS

In-service training courses are mainly taught by expert teachers and occasionally by university lecturers. Initial training at universities is taught by lecturers in this area of expertise whose academic interests include the role of ICT in education.

The MoE and most Autonomous Communities offer courses (most of them online) to teachers to become tutors in teacher training courses. The online courses offered by the MoE are compulsory for the future tutors.

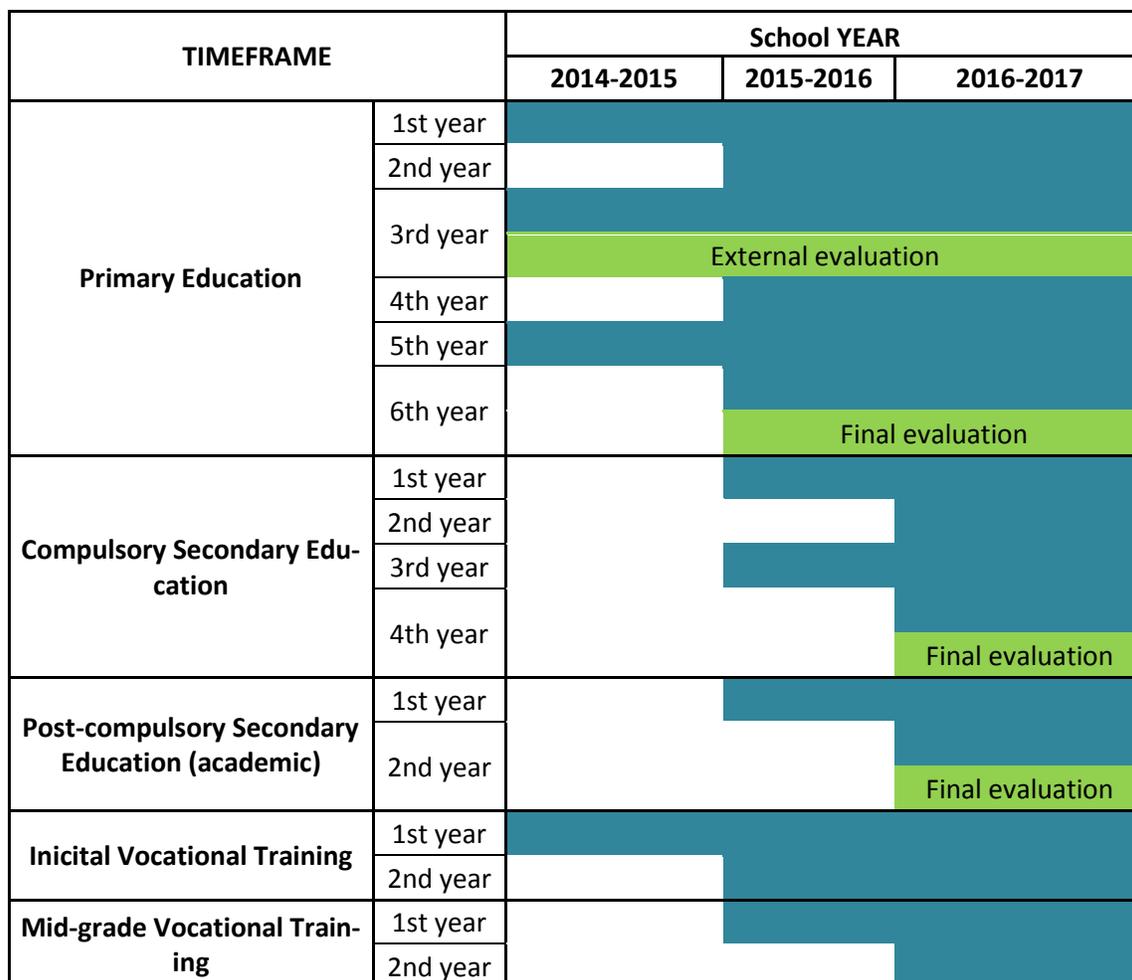
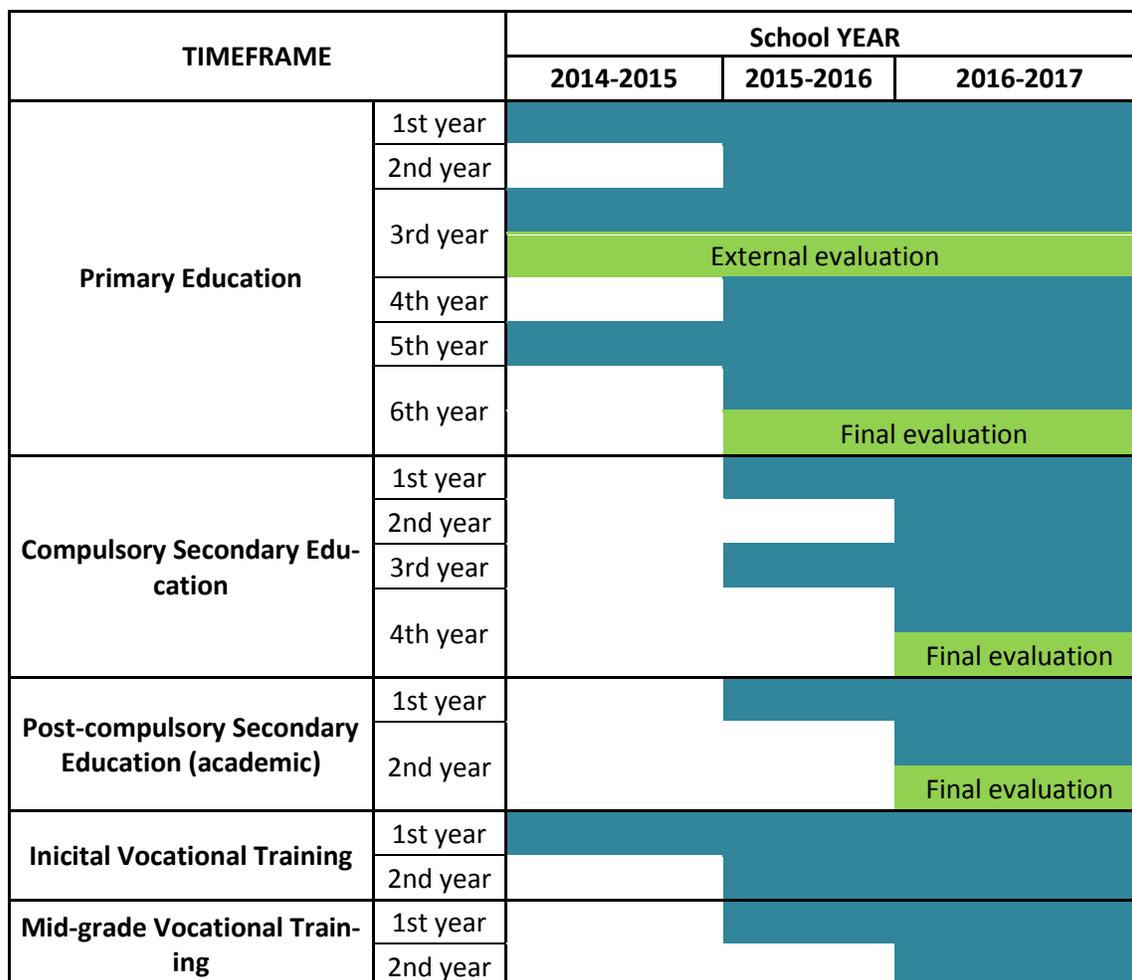
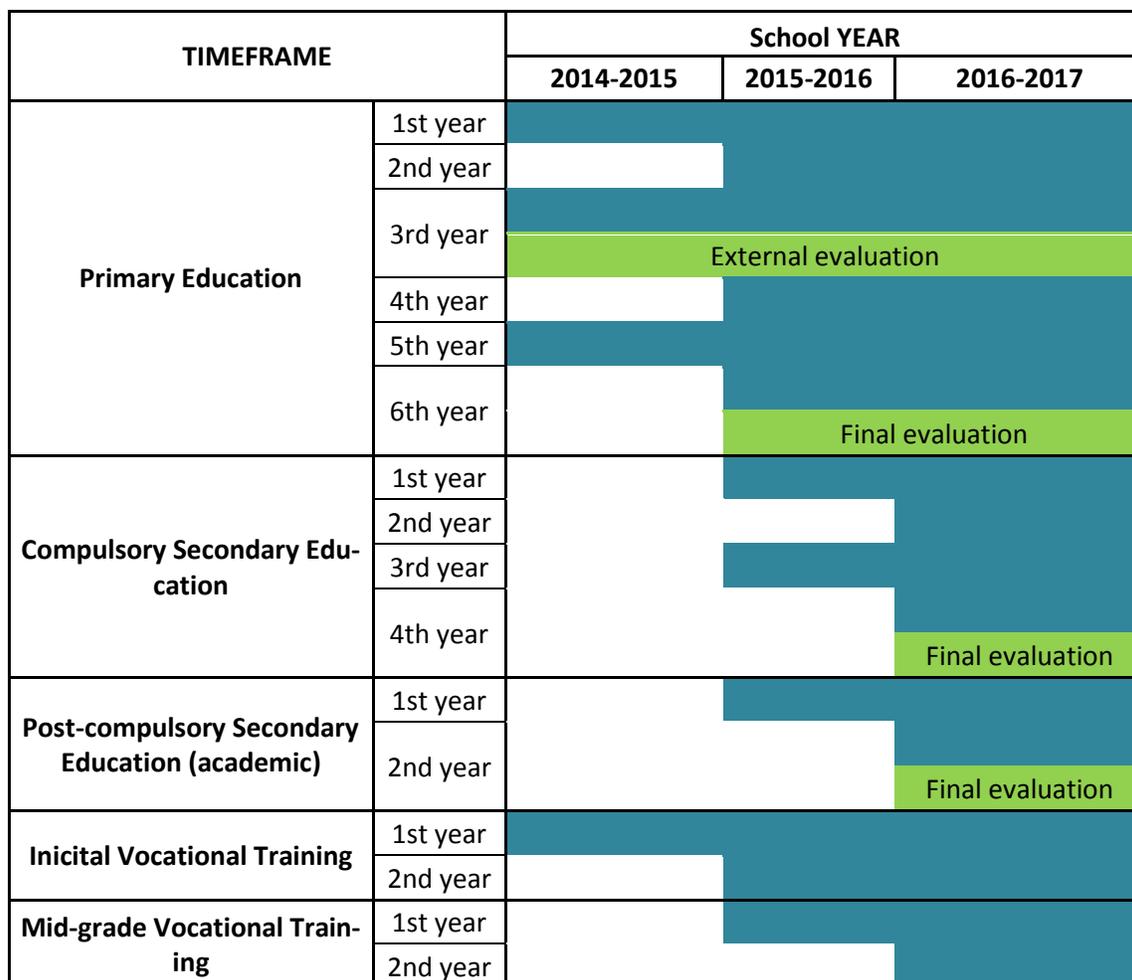
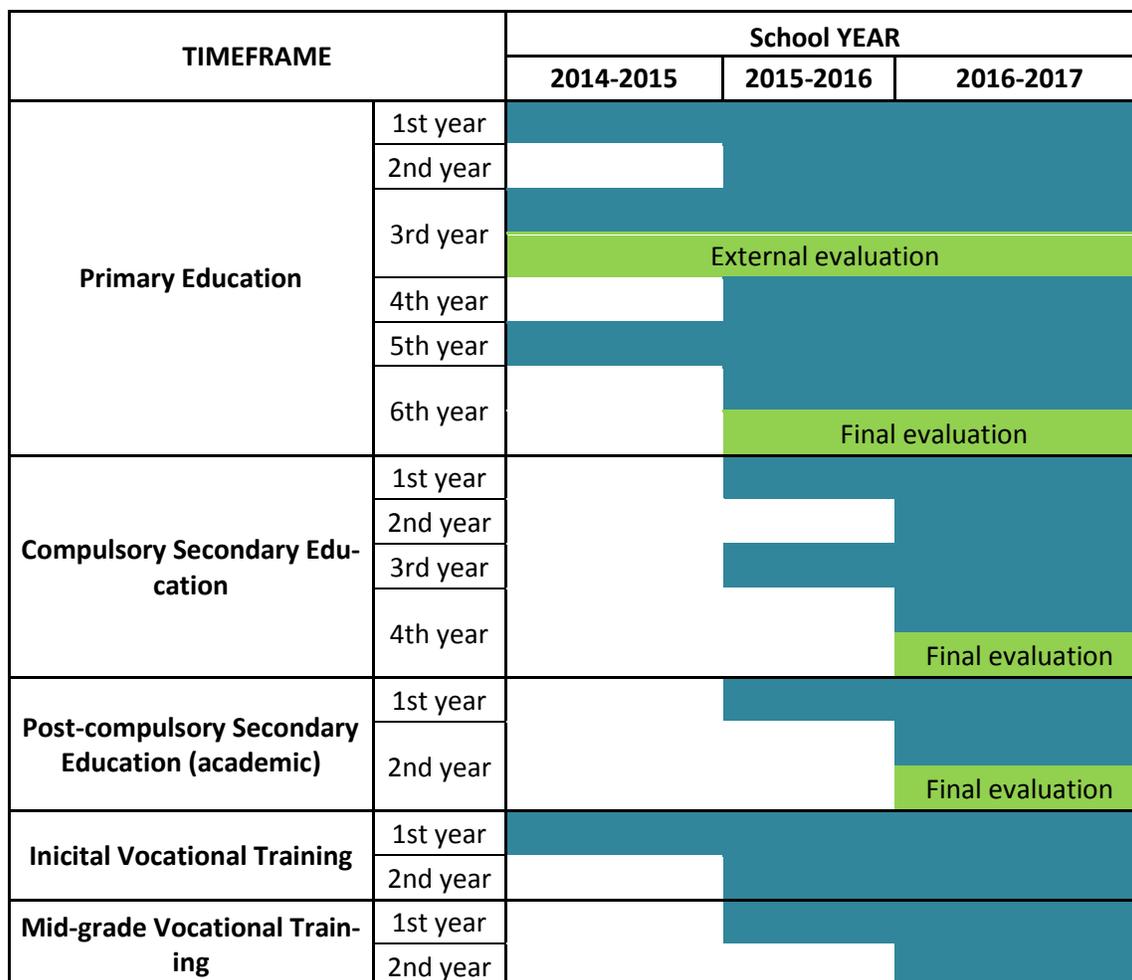
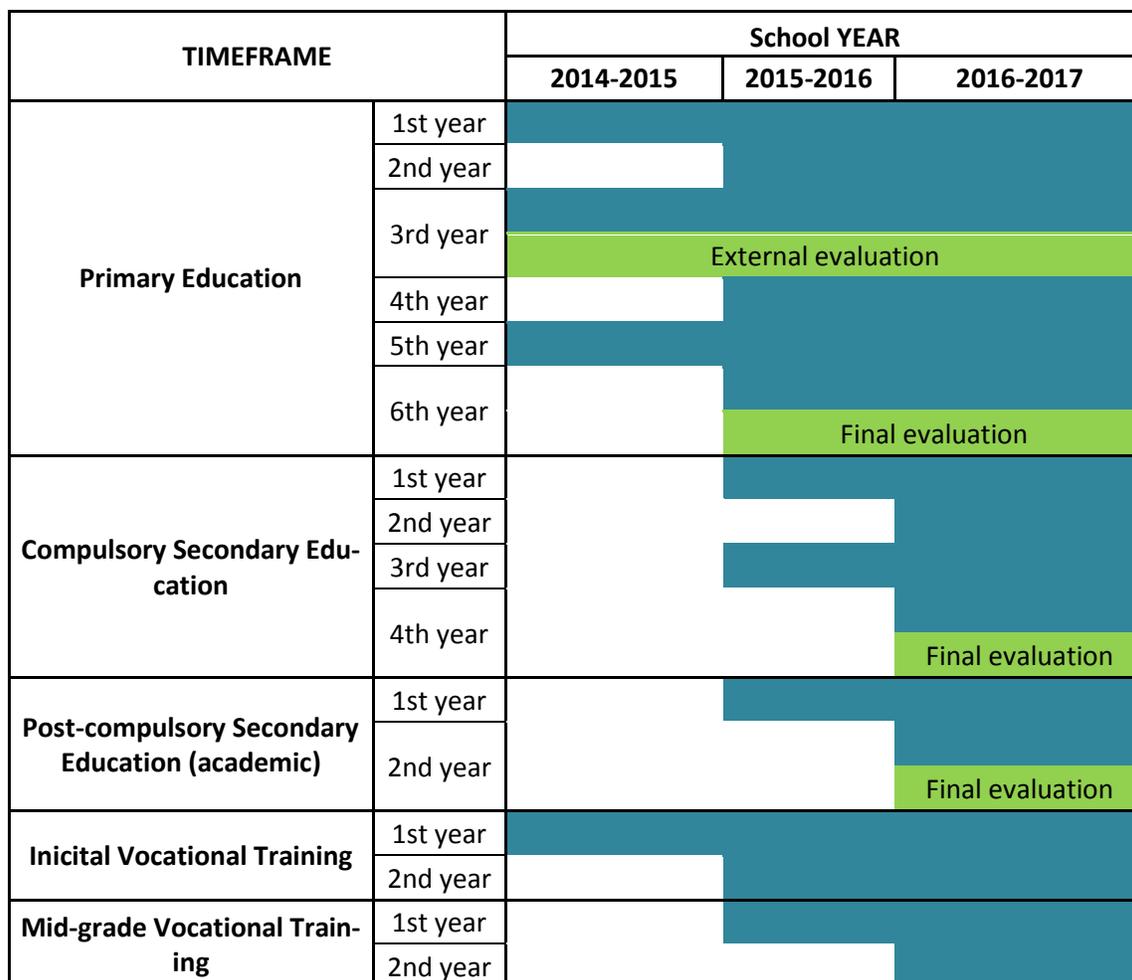
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ANNEX I: TIMEFRAME FOR THE IMPLEMENTATION OF THE LAW TO IMPROVE THE QUALITY OF EDUCATION: “LEY ORGÁNICA DE MEJORA DE LA CALIDAD EDUCATIVA”.

TIMEFRAME		School YEAR		
		2014-2015	2015-2016	2016-2017
Primary Education	1st year			
	2nd year			
	3rd year			
	4th year			
	5th year			
	6th year			
Compulsory Secondary Education	1st year			
	2nd year			
	3rd year			
	4th year			
Post-compulsory Secondary Education (academic)	1st year			
	2nd year			
Inicial Vocational Training	1st year			
	2nd year			
Mid-grade Vocational Training	1st year			
	2nd year			